CHAPTER THREE **Transit**

OVERVIEW

As shown on the MTS Transit System (see Appendix B-1), the following transit services are available in Alameda County:

- **Rail**—Provided by the Bay Area Rapid Transit (BART); Capitol Corridor between Sacramento and San Jose; and Altamont Commuter Express (ACE) between Stockton and San Jose.
- **Bus**—Provided by Alameda County (AC) Transit, Livermore-Amador Valley Transit Agency (LAVTA) and Union City Transit; public-private shuttle services throughout the county; and subscription bus service in East County.
- **Ferry**—Provided by the Alameda/Oakland Ferry and Alameda Harbor Bay Ferry.

Rail Operators

BART provides rail transit service in Alameda, as well as Contra Costa and San Francisco and the northern portion of San Mateo County. Approximately half of the current weekday ridership involves travel between the East and West Bays.

BART Overview for FY 2008-2009

Number of stations	43 total, including 19 stations in Alameda County
Number of weekday routes	Five
Weekday headways/peak periods	Varies from 5 minutes minimum to 15 minute maximum headway
Evening service number of routes	Three
Evening service headways	15 minutes
Service hours	4:00 am to 12 am
Average age of a rail car	11.7 years
Average life expectancy of a car	20 to 25 years for new cars, 15 years for rehabilitated cars

Capitol Corridor is an Intercity Rail Service managed by the Capitol Corridor Joint Powers Authority (CCJPA). It provides intercity connections between Sacramento and San Jose. For FY 2007-2008, Capitol Corridor maintained 32 weekday trains between Oakland and Sacramento. This includes 14 that connect between Oakland

and San Jose. The majority of the Capitol Corridor riders travel from the Sacramento area to the Bay Area. In Alameda County, the Capitol Corridor stops at Berkeley, Emeryville (a connection to San Francisco via motor coach service), Oakland (Jack London Square and Coliseum), Hayward and Fremont.

The Capitol Corridor is supported by capital and operating funds from the State of California. The rolling stock is owned by the state as well. As part of its System Transit Transfer Program, the CCJPA provides free transit transfers for use on AC Transit East Bay buses for customers and reimburses AC Transit for each transfer used. It also sells $10 value BART tickets for $8 in the café cars (CCJPA pays for the difference).

Capitol Corridor Overview for 2008-2009

Number of stations	19 stations in Alameda County
Number of weekday routes	5
Weekday headways	Varies from 20 minutes to 2 hours and 30 minutes
Service hours	Weekday: 4 am to 12 am
Week-end service hours	Saturday: 6am to 12 am, Sunday: 8 am to 12 am
Average age of a rail car	Not applicable
Average life expectancy of a car	Unavailable

ACE

ALTAMONT COMMUTER EXPRESS

ACE Commuter Rail provides service between Stockton and San Jose during the weekday morning and evening commute periods only.

ACE Overview for FY 2008-2009

Number of stations in Alameda County	9
Number of weekday routes	3
Weekday and evening headways	Mornings: 1 hour 5 minutes to 2 hours 50 minutes Evenings: 1 hour to 3 hours and 30 minutes
Service hours	Weekdays mornings: 4:20 a.m. and 6:40 a.m. Weekday evenings: 6:42 p.m. and 8:53 p.m. Weekday Midday service: 9:30 round-trip to San Jose, with a return trip at 2:15 p.m.
Average age of a rail car	7.5 years
Average life expectancy of a car	20 years

Bus Operators

AC Transit operates two main types of bus service: East Bay local service and TransBay service, as well as the joint Dumbarton service with Union City and Palo Alto.

East Bay Local Service. AC Transit service covers most of Alameda County and West Contra Costa County, including supplemental school service during the school months and community-based service that provides sporadic and direct mid-day service from community centers to shopping and other services.

TransBay Service. This service operates from East Bay to the TransBay Terminal in downtown San Francisco, as well as service across the San Mateo Bridge to the Hillsdale Mall terminal in San Mateo.

Dumbarton Express Dumbarton Express offers service across the Dumbarton Bridge, between Union City and Palo Alto. This service is provided through a consortium of AC Transit, BART, SamTrans, Union City Transit and Valley Transportation Authority.

AC Transit Overview for FY 2008-2009

Number of East Bay local routes	72, including two Limited Routes
Number of Routes Offering Community Destination-Based Service	Seven
Number of Lifeline-funded routes, providing service to help meet needs of a low-income community	One
Number of Rapid and Limited Lines	Two Rapid Lines and two Limited Lines

Number of TransBay routes • Including their distinct derivations • Service across the Bay Bridge, the San Mateo Bridge and the Dumbarton Bridge.	28
Number of "All-Nighter" routes providing Transbay and East Bay service when BART is not running	Six
Number of buses in active fleet	700
Average age of fleet	6.48 years (slightly reduced from previous year)
Average life expectancy of a bus	12 to 16 years

LAVTA provides local four levels of service to the cities of Dublin, Livermore and Pleasanton and to the adjacent unincorporated areas of Alameda County: WHEELS dial-a-ride, an ADA-mandated demand responsive service to elderly and disabled persons in Dublin, Pleasanton and Livermore; peak period bus service to Pleasant Hill; and supplemental service during academic year for middle and high schools.

At the end of Fiscal Year 2008-2009, LAVTA implemented a nearly 30-percent overall reduction in fixed route service, with significant cutbacks on almost all of its bus lines, including: Reductions in frequencies and hours of operation; discontinuation of midday service on Routes 3 and 18, and 24-hour service on the 10 line via the 810; suspension of the AllNighter Route; reduction in weekend service reductions, including discontinuation of Sunday operation on lines 8 and 12.

LAVTA Overview for FY 2008-2009

Number of active fixed routes buses	60, including a pool of buses used for the express routes
Number of Lifeline routes	1
Number of paratransit vehicles	21
Service hours	24 hours a day until the end of the fiscal year (see above)
Headways during peak periods	15 to 45 minutes, depending on the route
Average life expectancy of a bus	12 years
Average fleet age for fixed route	8.4 years

Union City Transit provides fixed route and paratransit services within Union City. Currently, Union City Transit contracts with MV Transportation for operations and maintenance. Union City Transit coordinates its service with AC Transit, BART and the Dumbarton Express.

Recent changes to Union City Transit service include: discontinuation of a Sunday service shuttle pilot program to Northern Fremont; discontinuation of Sunday service for Routes 3 and 4; rerouting of Routes 3 and 4; and initiation of Sunday service for Route 1B in FY 2008-2009.

Union City Transit Overview for FY 2008-2009

Number of fixed route buses in active fleet	15
Number of paratransit vehicles	5
Weekday service hours	4:15 a.m. to 10:35 p.m.
Saturday service hours	7:00 a.m. to 7:30 p.m.
Sunday service hours	8:00 a.m. to 6:30 p.m.
Average age of fleet	9 years
Average life expectancy of a vehicle	12 years

Ferry Operators

Alameda/Oakland Ferry provides service between San Francisco's Ferry Building, San Francisco's Pier 39, Alameda's Main Street terminal and Oakland's Jack London Square. The City of Alameda administers the service, which includes weekday, year-round and seasonal service. Seasonal service is offered from Alameda, Oakland and Angel Island State Park, as well as AT&T Park for Giants games.

Alameda/Oakland Ferry Overview for FY 2008-2009

Number of routes	11 commute and four midday departures
Headways during peak period	1 hour and 5 minutes
Service hours	Weekday service: 6:00 AM to 9:25 PM arrival at SF's Pier 41. Weekend service: Times vary seasonally.
Average age of a ferry	18 years
Average life expectancy of a ferry	20 years

Alameda Harbor Bay Ferry provides service between Alameda's Bay Farm Island and the San Francisco Ferry Building. Weekday service consists of three morning and four evening commute period trips.

Alameda/Harbor Bay Ferry Overview for FY 2008-2009

Number of routes	Three morning and four evening commute period trips.
Headways during peak period	1 hour
Service hours	Weekday service: 6:30 to 8:00 pm arrival at Alameda Harbor Bay. No midday service, no weekend service.
Average age of a ferry	16 years
Average life expectancy of a ferry	20 years

MEASURING TRANSIT PERFORMANCE

A variety of methods are used to measure the performance of transit in Alameda County, including:

- Ridership—How many people used transit?
- Service Coordination—How well are services being coordinated between destinations?
- Vehicle Maintenance—How often and to what extent do vehicles need repair? And how does it affect travel?
- Routing—What are the best routes to serve the most travelers?
- Frequency—How often is transit available?

Ridership

Transit ridership is measured by passenger boardings related to:

- Annual Ridership
- Ridership per Revenue Vehicle Mile
- Ridership per Revenue Vehicle Hour
- Weekdays Ridership
-

Annual Ridership

As shown in Table 5, ridership in Alameda County declined approximately two percent in 2008. AC Transit, BART, LAVTA and Alameda Harbor Bay Ferry maintained fairly stable ridership levels compared to the previous year. During the past year, ACE and Union City Transit experienced increased number of riders and Alameda Oakland Ferry experienced a decrease in ridership. Appendix B-2 shows annual changes in ridership in Alameda County by transit operator.

Table 5: Alameda County Transit Ridership

Annual Passenger Boardings (in 000's)

OPERATOR	2004/05	2005/06	2006/07	2007/08	2008/09
AC Transit[1]	56,680	58,927	58,934	57,370	57,370
BART[2]	32,946	34,939	36,297	37,829	37,809
LAVTA	1,938	2,037	2,136	2,234	2,195
Union City	381	398	421	439	464
Alameda-Oakland Ferry	382	426	443	459	400
Alameda Harbor Ferry	84	132	134	145	143
ACE[3]	641	642	228	226	265
County Total	93,052	97,501	99,073	98,702	96,450

Source: Data provided by the transit operators by special request.

Notes:

1. AC Transit data adjusted to deduct Contra Costa County. Based on hours of operating service in Alameda County and population served by AC Transit. Total numbers were systemwide numbers reduced by 12 percent to represent Alameda County. AC Transit calculations for 2008/2009 changed from previous years due to introduction of new transit fare method (TransLink).

2. BART data adjusted to represent Alameda County passenger boardings by annualizing the Average Weekday Passenger Boardings in Alameda County. An annualization factor of 290 was used for 2004-2005, 298 for FY 2006 and 300 for FY 2007 and 2008.

3. ACE method of calculations for FY 2006-2007 changed from previous years.

Ridership per Revenue Vehicle Mile

Passenger Boardings per Revenue Mile, as shown in Appendix B-3, is the number of passengers divided by the number of miles each transit vehicle is in revenue service. The measure excludes miles traveled to and from storage facilities and other deadhead travel. According to this measure, ridership remained fairly stable in Alameda County over the past year.

Ridership per Revenue Vehicle Hour

Passenger boardings per revenue vehicle hour, as shown in Appendix B-4, is the number of passengers divided by the number of hours each transit vehicle is in revenue service, including layover time. The measure excludes hours consumed while traveling to and from storage facilities and during other deadhead travel. According to this measure, Alameda County transit ridership remained fairly stable since last year, with the exception of notable decreases on LAVTA and Alameda Oakland Ferry and significant increases on the Alameda Harbor Bay Ferry.

Weekday Ridership

As shown in Appendix B-5, the total number of weekday passenger boardings for AC Transit, BART and ACE has remained remarkably consistent over the past year. Also, all three operators maintained a consistent weekday ridership over recent years.

Service Coordination

Figure 5 shows the number of transit lines serving major transportation terminals in Alameda County. BART provides the greatest number of transfer opportunities, including Fremont (19 lines), Hayward (28 lines), Union City (17 lines), 12th Street (16 lines), Downtown Berkeley (18 lines) and Dublin/Pleasanton (16 lines). In addition, the Hayward Greyhound Station has 10 transfer opportunities; AC Transit has many lines connecting to Eastmont Mall and Newpark Mall; and LAVTA added a line at the Livermore Transit Center.

Since FY 2007-2008, Alameda County continues to provide multiple locations where transit riders can connect between county transit providers.

Figure 5—Transit Service Coordination

Pending

Vehicle Maintenance

Rail and bus transit operators have different indicators of vehicle maintenance: bus operators report on Miles Between Mechanical Road Calls; and BART and ACE report on the Mean Time Between Failures.

For all transit modes, fewer miles between road calls or failures can be a sign of an aging fleet. A larger number of miles generally indicates a newer fleet or a higher proportion of newer vehicles. It can also indicate improved maintenance of the fleet or improved transit operations.

Service calls are for a variety of reasons including mechanical problems, fare box issues, and broken lights. They include service calls to the dispatch yard, the bus terminals, BART, as well as vehicles in-route and those that are either in-service or about to go into service.

Mechanical Road Calls

As shown in Appendix B-6, AC Transit reported a stable amount of miles between road calls in FY 2008-2009 compared to the previous year. LAVTA shows a 19 percent increase in miles between road calls while Union City Transit reported a 30 percent decrease of miles between mechanical road calls compared to the previous fiscal year. LAVTA's increase in miles between road calls may be attributed to an aggressive maintenance program. Union City Transit's increase in miles between road calls may be due to a different reporting method.

Mean Time Between Rail Service Delays

BART and ACE collect data to determine the average time between service delays. Train delays can be caused by personnel or mechanical failures. Appendix B-7 indicates that the BART system had improved steadily since 2005, but reduced by 11 percent over the past year. BART's overall reduction in time between service delays in the past four years may be due to an aging fleet combined with the loss of a train yard. The Mean Time between Service Delays for ACE in FY 2008-2009 reduced by 17 percent compared to the previous year. ACE's change may be due to operational improvements that were the result of two factors: 1) the reduction in Union Pacific's freight traffic along the rail lines by 40 percent compared to previous years, and 2) Union Pacific's installation of a new signal system, which reduced signal-related delays of ACE trains by approximately 90 percent.

Major Mechanical System Failures

The Federal Transit Administration defines a major mechanical system failure as a mechanical problem in which the vehicle does not complete its scheduled revenue trip or does not start its next scheduled revenue trip because actual movement is limited or because of safety concerns. The failure may occur in revenue service including layover/recovery time or during deadhead. Revenue vehicle system failures are reported as major mechanical system failures if they limit actual vehicle movement or are safety issues.

Examples of major bus failures include breakdowns of air equipment, brakes, doors, engine cooling system, steering and front axle, rear axle and suspension and torque converters. Major BART vehicle systems include automatic train operation, brake, auxiliary electric, door, propulsion and electric couplers. BART had 229 major system failures in FY 2008-2009, representing a seven percent increase compared to the previous year.

Routing

Routing is used to determine how many transit passengers are being served using a combination of three measurements:

- **Directional Route Miles**. Measures the amount of surface (roadway or trackway) that is covered by transit. For example, a one-mile segment of road over which transit operates in both directions would be reported as two miles, while a one-mile segment traversed by vehicles six times in the same direction would be counted as one-mile.
- **Service Coverage**. Measures the amount of service provided, including number of routes and frequency, on the transit system. For instance, a one-mile segment traversed by vehicles six times in the same direction would be counted as six-miles.
- Total annual **passenger** boardings.

While transit service has varied year to year, the overall trend shows that more transit service is being provided and more people are being served. Since FY 2002-2003, transit operators have provided more frequent headways, more routes and more route miles to more people. As shown in Table 6, compared to last year:

- Transit service covered slightly more directional route miles (two percent);
- Transit provided slightly less frequent service and fewer routes compared to the previous year (reduced over two percent); and
- The number of passengers riding transit decreased by over two percent.

Table 6: Transit Service to Passengers within Alameda County

MEASURE	2004/05	2005/06	2006/07	2007/08	2008/09	% change last year
Directional Route Miles	1,918	1,757	1,851	1,917	1,951	2%
Service Coverage (000s)	309.1	322.3	335.4	385	376	-2%
Annual Passengers Boardings (000s)	93,052	97,501	98,593	98,702	96,450	-2%

Source: Transit operators by special request

Frequency

Frequency is measured by how often transit service is provided on each route. For BART and bus, frequency is measured by the number of minutes between trains (headway). For Capital Corridor and ACE, frequency is measured by the number of train lines provided. Service hours vary by operator:

- AC Transit has provided 24-hours a day service since December 2005;
- AC Transit "All Nighter" routes provide Transbay and East Bay service at times when BART is not running;
- Union City Transit operates between 4:15 a.m. and 10:35 p.m.; and
- BART operates between 4:00 a.m. and 12:00 a.m.

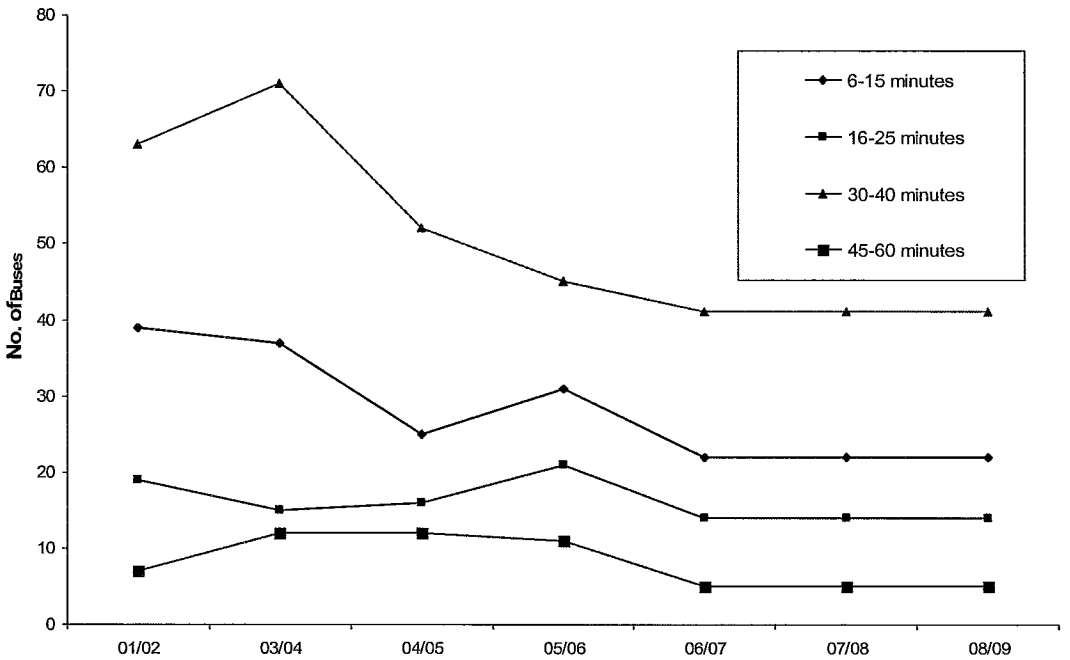
BART serves 19 Alameda County stations. Depending on the trip origin or destination, service is provided every 2 ½ to 15 minutes during the peak commute periods. In January 2008, BART changed service from every 20 minutes to every 15 minutes after 7:00 p.m. on weekdays, Saturdays and all day Sundays. Three transfer points at MacArthur Station and 12th Street Station (Oakland) and Bay Fair Station (San Leandro) provide transfers between BART lines.

For bus service, Appendix B8 shows the number of bus and train routes in Alameda County by how often they arrive, (headway). Amtrak/Capitol Corridor and ACE are shown by the number of trains that run different times of day. Figure 6 shows that the frequency of service peaked approximately five years ago and has remained stable in the past three years.

During the peak commute hours, 93 percent of Alameda County bus routes (77 routes) arrive every 40 minutes or less and 27 percent (22 routes) arrive every 15 minutes or less. Compared to the previous year, buses maintained the same frequencies.

Ferries neither scheduled major service changes, nor had any service disruptions in FY 2008-2009.

Figure 6: Bus Service Frequency



Lifeline Transportation Funded Projects

The CMA Board requested that the Performance Report include a summary of projects that were funded through the Lifeline Transportation Program. The Lifeline Transportation Program is a program initiated by MTC and administered by CMA to support transportation improvements in low income communities. A list of projects approved for Lifeline Transportation funding, which includes transit projects, is included in Appendix B-9.

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